## REMARKS

### I. Status of the Application

Claims 1-20 are pending in this application. Claims 17-20 were withdrawn from consideration. In the August 24, 2007 office action, the Examiner:

A. Rejected claims 1-16 under 35 U.S.C. § 103(a) as being unpatentable over Mistrater (U.S. Patent No. 5,681,391) in view of Pinsly (U.S. Patent No. 6,180,310) and Cai (U.S. Patent No. 6,270,850).

In this response, Applicant has canceled claims 1-16, and added new claims 21-36. Applicant respectfully requests reconsideration in light of the foregoing amendments and following remarks.

### II. Claim Rejections Are Now Moot

Claims 1-16 were rejected as being obvious over a combination of Mistrater, Pinsly and Cai. Claims 1-16 have been canceled. Accordingly, the rejections of claim 1-16 are now moot.

### III. New Claims 21-36

New claims 21-36 are directed to methods of forming a coating layer or CTL layer on a substrate such as a photoreceptor drum, and do not constitute new matter. New claims 21-36 have been written to clarify the intent and scope of the respective claims.

### A. Claim 21

Claim 21 is directed to a method of manufacturing a photoreceptor. Similar to previous claim 1, claim 21 includes the limitations of filling a tube with a CTL solution, inserting a substrate into the tube, and pumping the solution through the tube. Claim 21, *inter alia*, includes the limitation that the vertical flow rate of the CTL solution is adjusted in response to deviations of the measured viscosity from an initial viscosity. In particular, claim 21 recites:

> adjusting the pump speed to generate an adjusted vertical flow rate of the CTL solution in the tube in response to deviations of the measured viscosity from the initial viscosity as the substrate is being withdrawn from the tube, the adjusted vertical flow rate being selected in accordance with a magnitude of the deviations and the predetermined pull rate to provide an adjusted differential rate to maintain the target thickness of the CTL coating on the substrate as the substrate is withdrawn from the tube.

None of the prior art references cited in the office action teaches or suggests, among other things, such a limitation. In particular, none of the prior art references, teaches, shows or suggests, alone or in combination, adjusting the vertical flow rate as the substrate is being withdrawn from the tube in accordance with the magnitude or amount of the deviation of the measured viscosity from an initial viscosity and in accordance with the pull rate to maintain the target thickness of the CTL layer.

Previous claims 1-16 were rejected under a combination of Mistrater, Pinsly, and Cai. The Examiner argued that the references taken collectively teach, show or suggest each and every limitation of the previous claims. Applicant respectfully disagrees. Taken collectively, the combination of references still fails to teach, show or suggest altering the vertical flow rate of the

coating solution in the tube as the substrate is being withdrawn from the tube. Moreover, none of the cited references discloses or suggests why it would be desirable to alter the vertical flow rate of the coating solution based on the measured viscosity as the substrate is being withdrawn from the tube.

In the office action, Mistrater was cited as providing the teaching that the coating speed affects the thickness of the coating layer. There is no disclosure or suggestion in Mistrater, however, of a relation between the viscosity of the coating solution and the relative coating speed or why it would be desirable to adjust flow rate based on viscosity measurements. Claim 21 requires that adjustments to the vertical flow rate be made in accordance with the measured viscosity as the substrate is being withdrawn from the tube. There is no disclosure or suggestion in Mistrater of how changes in coating speed as the substrate is withdrawn from the dip tank affects the thickness of the CTL layer.

Pinsly was cited as providing the teaching of measuring the viscosity and adjusting the viscosity of the coating solution by adding solvent to the solution to try and maintain a relatively consistent viscosity of the coating solution in order to maintain a substantially uniform thickness of the coating layer. Pinsly was not cited as disclosing, nor does it disclose, adjusting the vertical flow rate as the substrate is being withdrawn from the tube in accordance with the magnitude or amount of the deviation of the measured viscosity from an initial viscosity and in accordance with the pull rate to maintain the target thickness of the CTL layer. As mentioned in the previous office action response, Pinsly teaches against altering the vertical flow rate of the coating material into the tube, or coating

vessel during the coating process, *i.e.*, as the substrate is being withdrawn from the tube. For example, at col. 10, lines 10-22, Pinsly states that "the flow rate of the coating solution into the coating vessel 20 should be substantially constant." Moreover, Pinsly is silent as to a relationship between coating speed and viscosity or why it would desirable to adjust the coating speed based on the viscosity as a substrate is being withdrawn from the coating vessel.

Cai was cited as disclosing that the coating thickness is related to coating speed and viscosity. Cai, however, is directed to improving the quality of the dip coating layer by selecting the appropriate gap distance between the substrate and the dip coating vessel. Cai is not directed to making adjustments during the dip coating process. Cai is directed to determining the gap distance prior to performing the dip coating process. Cai is silent as to making adjustments during the coating process. Therefore, Cai is silent as to why it would desirable to adjust the coating speed based on the viscosity as a substrate is being withdrawn from the coating vessel.

In summary, taken together, none of the prior art references, teaches, shows or suggests, alone or in combination, adjusting the vertical flow rate as the substrate is being withdrawn from the tube in accordance with the magnitude of the deviation of the measured viscosity from an initial viscosity and in accordance with the pull rate to maintain the target thickness of the CTL layer. Mistrater is not directed to adjusting or compensating for changes in viscosity of the coating solution as the substrate is being withdrawn from the tube. While Pinsly is directed to adjusting or compensating for changes in viscosity of the

coating solution, Pinsly specifically teaches against altering the vertical flow rate as the substrate is being withdrawn from the tube. Cai is not directed to adjusting or compensating for changes in viscosity of the coating solution to maintain a uniform thickness as the substrate is being withdrawn from the tube. Mistrater, Pinsly and Cai may disclose a relationship between the coating speed and coating thickness as well as the viscosity and coating thickness. None of the references disclose a relationship between the coating speed and the viscosity such that a person would be led to alter the coating speed based on viscosity changes as the substrate is being withdrawn form the tube.

Accordingly, for the reasons discussed above, Applicant submit that new claim 21 is patentable over the cited prior art.

B. **New Claims 22-29**

New claims 22-29 depend from new claim 21, and, therefore, are patentable for at least the same reasons as claim 21. Moreover, new claims 22-29 include additional reasons for patentability over the prior art. For example, claim 22 includes the limitation that the pump includes a variable speed controller for driving the pump at the initial and adjusted pump speeds. Claim 25 discloses increasing the pump speed if the measured viscosity is greater than the target or initial viscosity, and decreasing the pump speed if the measured viscosity is lower than the target or initial viscosity. Claims 26-29 include further limitations as to how or when or to what degree the pump speed is decreased or increased.

### C. New Claims 30-36

New claim 30 is directed to a method of controlling the thickness of a coating layer on an article. New claim 30 includes limitations similar to those found in claim 21. For example, claim 30 includes the limitation of:

> adjusting the vertical flow rate of the coating solution from the initial vertical flow rate to an adjusted vertical flow rate in response to the detected viscosity deviating from the initial viscosity, the adjusted vertical flow rate causing an adjusted differential rate, the adjusted differential rate being selected in accordance with the pull rate and the detected deviating viscosity to maintain the target thickness of the coating layer.

Therefore, the reasons for patentability presented above for claim 21 are applicable to new claim 30.

New claims 31-36 depend from new claim 30, and, therefore, are patentable for at least the same reasons as claim 30. New claims 31-36 include additional reasons for patentability over the prior art. For example, claim 33 discloses increasing the pump speed if the measured viscosity is greater than the target or initial viscosity, and decreasing the pump speed if the measured viscosity is lower than the target or initial viscosity. Claims 34-36 include further limitations as to how or when or to what degree the pump speed is decreased or increased.

## IV. Conclusion

For all of the foregoing reasons, Applicant respectfully submits a patentable contribution to the art has been made. Favorable reconsideration and allowance of this application is therefore respectfully requested.

In the event Applicant has inadvertently overlooked the need for an extension of time or payment of an additional fee, the Applicant conditionally petitions therefore, and authorizes any fee deficiency to be charged to deposit account number 24-0037.

Respectfully submitted,
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